QUALITY ASSURANCE PROJECT
MANAGEMENT PLAN - INDEX

PHASE III REMEDIAL INVESTIGATION/
FEASIBILITY STUDY

BALLY ENGINEERED STRUCTURES SITE
BALLY, PENNSYLVANIA

"REALISTIC SOLUTIONS FOR HAZARDOUS WASTE PROBLEMS" REMCOR

QUALITY ASSURANCE PROJECT
MANAGEMENT PLAN - INDEX

PHASE III REMEDIAL INVESTIGATION/FEASIBILITY STUDY

BALLY ENGINEERED STRUCTURES SITE
BALLY, PENNSYLVANIA

PREPARED FOR

BALLY ENGINEERED STRUCTURES, INC.

SEPTEMBER 23, 1987

PROJECT NO. 87313

REMCOR, INC.
PITTSBURGH, PENNSYLVANIA

John A. George
JOHN A. GEORGE
REMCOR PROJECT MANAGER

Linda K. Scholl
LINDA K. SCHOLL
REMCOR QUALITY ASSURANCE OFFICER

TABLE OF CONTENTS

Quality Assurance Project Management Plan Index

FOR SCOPE OF WORK (SOW)
FOR THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY
FOR THE BALLY ENGINEERED STRUCTURES SITE
BALLY, PENNSYLVANIA

INTRODUCTION

Site Name: ___Bally Engineered Structures Site___

Document Name(s): ___QAPMP - Index___

Plan Submitted To: ___Kim Kariya (3HW12)___

Title: ___Compliance Officer___

Organization: ___Remedial Enforcement___

Telephone No.: ___215/597-8216___

Date Submitted: ___September 23, 1987___

Date of Project Initiation: ___Upon plan approval___

Program: ___CERCLA-PRP___

Summary

This Quality Assurance Project Management Plan (QAPMP) - Index has been prepared by Remcor, Inc. (Remcor) on behalf of Bally Engineered Structures, Incorporated (BES). The QAPMP-Index was prepared in response to comments received from EPA Region III relative to a quality assurance program for the BES Site Remedial Investigation and Feasibility Study (RI/FS). With the approval of EPA, Region III, this index format has been used to summarize required elements of the quality assurance program currently detailed in the BES RI/FS Work Plan and Field Sampling and Analysis Plan (FSAP). The required content is as specified in "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans" (QAMS-005/80, December 29, 1980).

Abbreviations used in this QAPMP-Index are as follows:

SOW	- RI/FS Work Plan for the BES Site
FSAP	- Field Sampling and Analysis Plan
N/A	- Not Applicable
App.	- Appendix
Calib. Log	- Calibration Log
MDL	- Method Detection Limit

REMCOR

"REALISTIC SOLUTIONS FOR HAZARDOUS WASTE PROBLEMS"

SECTION 1 - Project Description

	PLAN	SECTION	COMMENTS
The following are addressed or included as referenced:			
1 - Statement of objectives (purpose)	SOW	3.1	-
2 - Dates for start and completion of project and sampling activities	SOW	5.2	Figure 5-2
3 - Overview of project's scope (activities)	SOW	4.1	-
4 - Background information	SOW	2.0	-
5 - Brief statement of intended data usage(s)	SOW	3.1.1	-
6 - Description of sampling network design and rationale:			
6a - Design of overall monitoring systems	SOW	4.1	-
6b - Specific location of sampling sites	SOW	4.1	Figures 4-1 and 4-2
• Source delineation and characterization	FSAP	5.0	-
• Exploratory drilling program	FSAP	6.0	-
• Monitoring well installation	FSAP	7.0	-
• Aquifer performance testing	FSAP	8.0	-
• Surface and ground water sampling	FSAP	9.0	-
6c - Justification of overall design	SOW	4.1	-
7 - Sample matrices	FSAP	5.0	Soils
	FSAP	9.0	Aqueous
8 - Parameters to be measured	FSAP	General	Table 3-1
9 - Frequency of collection	FSAP	5.0/9.0	-
10 - Field and lab measurements	FSAP	5.0/9.0	-
11 - Procedures for filtered/unfiltered ground water, or other similar fractions/subgroups specified and included in parameter definition	N/A	-	-
12 - Type of sample(s) (grab, composite, etc.)	FSAP	General	Table 3-1

SECTION 2 - Project Organization and Responsibility

	PLAN	SECTION	COMMENTS
1 - Plan identifies key organizations/ people responsible for:			
• Overall QA/QC	SOW	5.1.5	-
• Sampling operations and sampling QC	SOW	5.1.3	-
• Laboratory analyses and laboratory QC	SOW	5.1.8	-
• Data processing and data processing QC	SOW	5.1.3	-
• Data review	SOW	5.1.9	-
• Performance and system audits (lab and field)	SOW	5.1.5	-
2 - Not a state-lead remedial or SI	N/A	-	-
3 - Telephone numbers and addresses	SOW	5.0	As required in each subsection
4 - Line authority for all referenced organizations demonstrated by including an organizational chart	SOW	5.0	Figure 5-1
5 - Personnel qualifications, training, experience, resumes	SOW	App. B	-

SECTION 3 - QA Objectives and Criteria

	PLAN	SECTION	COMMENTS
1 - A comprehensive statement intended data usage	SOW	3.1.1	-
2 - The terms and definitions for precision, accuracy, representativeness, comparability, and completeness are properly used and expressed (i.e., QA/QC concepts and theories are understood and properly implemented relative to the Project)	SOW	3.2.1	-
3 - Data Quality Objectives (DQOs) are quantitatively stated for precision and accuracy (bias)	SOW	3.2.2	-
3a - The following have been defined for each matrix and parameter:			
1. Level of QA effort (frequency of QC, etc.)	FSAP	10.2.1	-
2. Accuracy (matrix, spikes, surrogate spikes, reference samples, etc.)	FSAP	10.2.1	-
3. Precision (replicate samples)	FSAP	10.2.1	-
4. Sensitivity or MDL	SOW / FSAP	3.2.3 / General	- / Table 3-2
5. Statistical reporting units	FSAP	10.2.4	-
3b - Quantitative limits established for each	SOW / FSAP	3.2.2 / 10.2.4	- / -
3c - Field and lab both covered	SOW / FSAP	3.2.2 / 10.2.1/ 10.2.4	- / -
3d - It is clear that a distinction has been defined for "total" system variability and bias versus only looking at the laboratory	SOW / FSAP	3.2 / 10.2	- / -
3e - Objectives/requirements are properly expressed (e.g., not confused with capabilities)	SOW / FSAP	3.2.2 / 10.2.4	- / -

SECTION 3 - QA Objectives and Criteria (Continued)

	PLAN	SECTION	COMMENTS
4 - Completeness objectives are quantitatively stated	SOW	3.2.2[1]	-
5 - Representativeness and comparability are appropriately stated	SOW	3.2.2	-
6 - The interrelationships (and differences) between study design (number of samples needed), analytical procedures, internal QC and data assessment are reflected in the DQOs	SOW	3.2.3	-

─────────────

[1]Quantitative completeness requirements may not be entirely resolved until data have been received relative to hydrogeologic conditions and extent and degree of contamination.

AR300310

SECTION 4 - Sampling Procedures

	PLAN	SECTION	COMMENTS
1 - Procedures are documented and	FSAP	5.0	Soil
detailed for all parameters	FSAP	9.0	Aqueous
2 - The following elements are included:			
• Investigation objectives	SOW	3.1	-
• Site background	SOW	2.0	-
• Analysis of existing data	SOW	2.5	-
• Analytes of interest	FSAP	General	Table 3-1
• Sample types	FSAP	General	Table 3-1
• Map of locations to be sampled	FSAP	General	Figures 5-2 and 9-1
• Sample locations and frequency	FSAP	5.0 9.0	Soil Aqueous
• Technique or guideline used to select sites	SOW	4.1	-
• Operational plan/schedule	SOW	5.0	Figure 5-2
• Cost estimate	N/A[2]		-
• Specific sample collection methods	- FSAP	5.0 9.0	Soil Aqueous
• Description of sampling services	FSAP -	5.0 9.0	Soil Aqueous
• Containers (types and source)	FSAP	General	Table 3-2
• Preservatives (type and source)	N/A	-	-
• Holding times	FSAP	General	Table 3-2
• Reagents	N/A	-	-
• Transport and storage	FSAP	3.8.2	-
• Preparation of sampling equipment (before and during sampling) and containers	FSAP	3.4	-
• Blanks	FSAP	10.2.1.1	-
• Record keeping requirements	FSAP	3.8	-
• Coordination with laboratory	FSAP	3.7	-

---

[2] No specific chemical preservation required.

SECTION 4 - Sampling Procedures (Continued)

	PLAN	SECTION	COMMENTS
3 - For RI/FS especially, the Sampling Plan does:			
• Provide specific guidance for all field work	FSAP	General	-
• Provide a mechanism for planning and approving site activities	SOW FSAP	5.1 3.2	- -
• Provide a basis for estimating costs of field efforts	N/A	-	-
• Ensure that sampling activities are limited to those that are necessary and sufficient	FSAP	1.0/ General	-
• Provide a common point of reference for all parties to ensure comparability and compatibility between all activities performed at the site	SOW	5.1.3	-

SECTION 5 - Sample Custody

	PLAN	SECTION	COMMENTS
1 - The plan addresses:			
• Field custody procedures	FSAP	3.8.2.1	-
• Transfer of custody and shipment	FSAP	3.8.2.2	-
• Receipt of samples	FSAP	3.8.2.3	-
• Lab custody procedures	FSAP	3.8.2.3	-
2 - The plan includes examples of forms, tags, labels, records, etc.	FSAP	App. B	-
3 - The plan addresses evidentiary considerations	FSAP	3.8.2.3	-
4 - Field custody procedures:			
• Document preparation of reagents or or supplies	N/A	-	-
• Include procedures/forms for recording the exact location and specific considerations associated with sample acquisition	FSAP	3.8/ App. B	-
• Document specific preservation method	FSAP	General	Table 3-2
• Include labels containing all necessary information	FSAP	App. B	-
• Include form to track custody	FSAP	App. B	-
5 - Lab's custody procedures:			
• Identify sample custodian	FSAP	3.8.2.3	-
• Provide for custody record within lab	FSAP	3.8.2.3	-
• Specify procedures for sample handling, storage, dispersement for analysis and disposal	FSAP	3.8.2.3	-

SECTION 6 – Calibration Procedures and Frequency

	PLAN	SECTION	COMMENTS
1 – Plan includes methods/procedures to assure field and lab equipment are functioning optimally	FSAP	10.1	-
2 – Frequency of above included	FSAP	10.1	-
3 – Equipment log books required to record usage, maintenance, calibration and repair	FSAP	10.1	-
4 – Plan includes calibration standards to be used, their source and traceability procedure	FSAP	10.1.1/ App. A	-
5 – Plan includes calibration documenta- ion requirements:			
• Date(s) of calibration	FSAP	App. A/B	Calib. log
• Identification of standards used	FSAP	App. A/B	Calib. log
• Personnel performing calibration	FSAP	App. A/B	Calib. log
• Results of calibration (raw data	FSAP	App. A/B	Calib. log
• Corrective actions taken	FSAP	App. A/B	Calib. log

200314

"REALISTIC SOLUTIONS FOR HAZARDOUS WASTE PROBLEMS" REMCOR

SECTION 7 - Analytical Procedures

	PLAN	SECTION	COMMENTS
1 - Analytical procedures are written as SOPs and included in full or by reference	FSAP	App. A (field)	-
1a - All procedural steps and options options are described	-	CLP (lab)	(3)
2 - The criteria of method selection is included (e.g., in order to obtain a particular DQO)	SOW	3.2.3	-
3 - For CERCLA, CLP equivalency is determined	-	-	(3)
4 - It is evident from the plan that the laboratory has the appropriate facilities, services, equipment, and supplies to perform the required analysis(es)	-	-	(3)
5 - The methods include specific QC requirements (type, frequency, acceptance, etc.)	-	-	(3)

---

(3) Laboratory analytical protocols will follow the most current "CLP Statement of Work for Organics Analysis" (EPA, July 1987). NUS Laboratories is a participating CLP Laboratory.

"REALISTIC SOLUTIONS FOR HAZARDOUS WASTE PROBLEMS" REMCOR

SECTION 8 - Data Reduction, Validation, and Reporting

	PLAN	SECTION	COMMENTS
Reduction:			
1 - Units specified for all determinations	FSAP	10.2.3	(4)
2 - Equations/procedures used to calculate concentrations included or referenced	-	-	(3)
3 - The types of records to be maintained described, including how and where stored	FSAP	10.2.3	(3)
4 - Procedures included for transfer of data to forms, reports, etc.	FSAP	10.2.3	-
5 - Procedures for proofing (transcription errors) and cross-calculation checks checks included	FSAP	10.2.3	-
6 - Procedures for handling blank results described	FSAP	10.2.3	(4)
Validation:			
1 - Functions and scope specifically defined	FSAP	-	(4)
2 - Techniques presented and summarized	FSAP	-	(4)
3 - Criteria used to accept or reject data described in a uniform and consistent manner	FSAP	-	(4)
Reporting:			
1 - The flow or reporting scheme from collection of raw data through storage is included	SOW	4.2.1	(Tasks 7, 13, and 14)
	FSAP	10.2.3/ 10.5	-
2 - Requirements for record keeping in field and lab notebooks described	FSAP	10.3	-
3 - The key individuals who will handle or report data identified	FSAP	10.2.3	-
4 - Examples of forms and reports included	-	-	(3,4)
5 - The plan describes exactly what will be reported (e.g., QC results etc.)	-	-	(3,4)

---

(4) Data validation will be performed by Support Systems, Fort Collins, Colorado, in accordance with EPA "Functional Guidelines" (EPA, April 1985).

SECTION 9 - Internal Quality Control Checks

	PLAN	SECTION	COMMENTS
1 - Plan describes procedures for both field and lab	FSAP	10.2.1	-
2 - Protocols used (spikes, surrogates, blanks, etc.) described for each parameter and matrix	FSAP	10.2.1	-
3 - Acceptance or control limits specified	FSAP		(3,4)
4 - The frequency of the checks	FSAP	10.2.1, Table 3-1	-
5 - The intent is to measure total error/ variability, rather than component (sampling/lab) error/variability	SOW FSAP	3.2 10.2	- -
6 - The procedures described for internal QC checks are consistent with procedures used to assess precision and accuracy	FSAP	10.2.1/ 10.2.4	-

SECTION 10 - Performance and System Audits

	PLAN	SECTION	COMMENTS
1 - Audits are addressed for both field and lab activities	FSAP	10.2.2	-
2 - The plan identifies who will conduct the audits. The plan describes what protocols will be used for audits	FSAP	10.2.2	-
4 - Acceptance criteria are defined	FSAP	10.2.2	(3)
5 - The plan describes distribution of audit reports	FSAP	10.5	-
6 - A schedule of audits is included	FSAP	10.2.2	-

SECTION 11 - Preventative Maintenance

	PLAN	SECTION	COMMENTS
1 - The plan includes a schedule of important tasks that minimize downtime	FSAP	10.1.2	-
• A critical spare parts list is available	FSAP	10.1.2/ App. A	-

SECTION 12 – Specific SOPs Used to Assess Data Precision, Accuracy, Representativeness and Completeness

	PLAN	SECTION	COMMENTS
1 – The plan includes protocols for monitoring whether requirements met	FSAP	10.2.4	(3)
2 – The plan includes the equations used to calculate precision, accuracy (bias) and completeness	FSAP	10.2.4	(3)
3 – The plan describes the methods used to gather information for precision and accuracy (bias) calculations	FSAP	10.2.4	(3)

SECTION 13 - Corrective Action for Out-of-Control Situations

	PLAN	SECTION	COMMENTS
1 - The plan includes a scheme to identify defects, trace defects to source, plan, and implement correction and document results of process	FSAP	-	-
2 - The plan includes predetermined limits for data acceptability beyond which corrective action is required	SOW	3.2.2	(3,4)
3 - Procedures for corrective action (who initiates, who approves) are included	FSAP	10.4	(3)

SECTION 14 - Quality Assurance Reporting Procedures

	PLAN	SECTION	COMMENTS
1 - The plan specifies the type and frequency of reporting	FSAP	10.5	-
2 - The reports address the status of project (time table), results of performance and system audits, data quality assessment, significant QA problems and proposed corrective action, and changes in the QAPMP	FSAP	10.5	-

REFERENCES

AR300323 AR300323

LIST OF REFERENCES

U.S. Environmental Protection Agency (EPA), December 29, 1980, "Interim Guidelines for Preparing Quality Assurance Project Plans," EPA Publications Center, Washington, DC.

U.S. Environmental Protection Agency (EPA), April 1985, "Laboratory Data Validation - Functional Guidelines for Evaluating Organics Analysis," EPA Publications Center, Washington, DC.

U.S. Environmental Protection Agency (EPA), July 1987, "Statement of Work for EPA Contract Laboratory Program," USEPA Annapolis Laboratory, Annapolis, Maryland.

AR300324

REMCOR